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The Generic Positions of Some North American Species Commonly Referred to *Pyrausta* Schrank (Lepidoptera: Pyralidae)¹

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It has for some time been realized that the genus *Pyrausta* as it stands in current North American lists is a very unnatural one. Forbes (1926) pointed out that a fundamental division of the Pyraustinae is possible on the basis of the presence or absence in the male fore wing of the frenulum hook, and that species of both types have ordinarily been included in *Pyrausta*. Subsequent studies of genitalic structure—particularly that by Pierce and Metcalfe (1938)—have borne out the importance of this division.

Within the conventional limits of the genus *Pyrausta*, the species that retain the frenulum hook are of relatively uniform genitalic structure. All that I have examined of this category have in the female a characteristic quadrate signum, as illustrated for a number of British species by Pierce and Metcalfe. In the male there is usually a basally directed lobe, bearing specialized setae, on the inner surface of the valve. Subdivision of this group will not be possible without the study of many exotic species, and the consideration of allied forms now standing in several different genera. *Pyrausta cingulata* (Linnaeus), the type of the genus, has the frenulum hook, and the name *Pyrausta* may for the present be retained in a collective sense to designate this division of the old genus.

In "*Pyrausta*" in the broad sense, Forbes lists only the *pertextalis* group as lacking the frenulum hook. This statement is, however, not quite complete. The list given by McDunnough (1939) includes species with no frenulum hook which prove to belong to at least eight distinct genera, two of which appear to be unnamed. A synopsis of these genera follows.

Genus *Blepharomastix* Lederer (Figs. 1, 17)

Type: *Stenia ranalis* Guenée

Blepharomastix Lederer, 1863, p. 422; type: *Stenia ranalis* Guenée

Frons rounded, not prominent; eyes large; antennae evenly ciliated, not conspicuously annulated; maxillary palpus filiform, not nearly reaching the tip of the second joint of the labial; labial palpus with second joint obliquely upturned; third joint tufted in front, minute and blunt or somewhat larger and porrect. Body and legs slender, without conspicuous special modifications; tympanic apertures large and oblique, with a conspicuous pair of flaps below.

Wings rather narrow, apices acute; frenulum hook absent. Venation normal for the group; R_1 arising near end of cell; R_4 longer than stalk of $R_3 + R_4$; R_5 somewhat curved, but not approximated to $R_3 + 4$; anal loop large and strong. Discocellulars of both wings oblique and moderately incurved. M_2 , M_3 , and Cu_1 of hind wing arising from lower angle of cell, not approximated to one another at base.

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Male genitalia: weakly sclerotized; tegumen moderately broad; uncus long and slender, with the tip somewhat expanded and heavily spinulose; a slender transtilla; saccus rather slender; juxta weakly sclerotized, pentagonal; valves long and oval, costa somewhat expanded just beyond the base; the entire margin is tubularly thickened, but the valve is otherwise unarmed; aedoeagus slender, with two or three hooked cornuti.

Female genitalia: ovipositor lobes small, weakly divided; apodemes of segments nine and ten weakly sclerotized, feebly and irregularly sinuate; ductus bursae wide near the ostium, and supported by a four-lobed plate, then narrowing to lead to a small bursa; signum irregular in shape, with a deep, heavily sclerotized, transverse crease.

In his original description Lederer listed four species as belonging to this genus. Not being aware of any previous designation, I select *ranalis* Gn. as type.

Pyrausta pseudoranalis B. and McD. has genitalia almost exactly similar to those of *B. ranalis*, and should be removed to *Blepharomastix*. The somewhat greater length of the third joint of the palpus, on the basis of which Barnes and McDunnough placed the species in *Pyrausta*, is clearly not of generic importance.

The following species, at present placed in *Blepharomastix*, are structurally distinct and do not belong here: *ebulealis* Gn., *apicalis* Gn., *magualis* Gn., and *stenialis* Gn. I am not at present able to give their true generic positions.

Blepharomastix should be placed close to *Desmia*.

Genus *Palpita* Hübner (Figs. 2, 11, 18)

Type: *Palpita unionalis* Hübner

Palpita Hübner, 1808; monotype: *Palpita normalis unionalis* Hübner

Hapalia Hübner, [1808 -] 1818; monotype: *Hapalia illibalis* Hübner

Conchia Hübner, 1821; monotype: *Palpita unionalis* Hübner

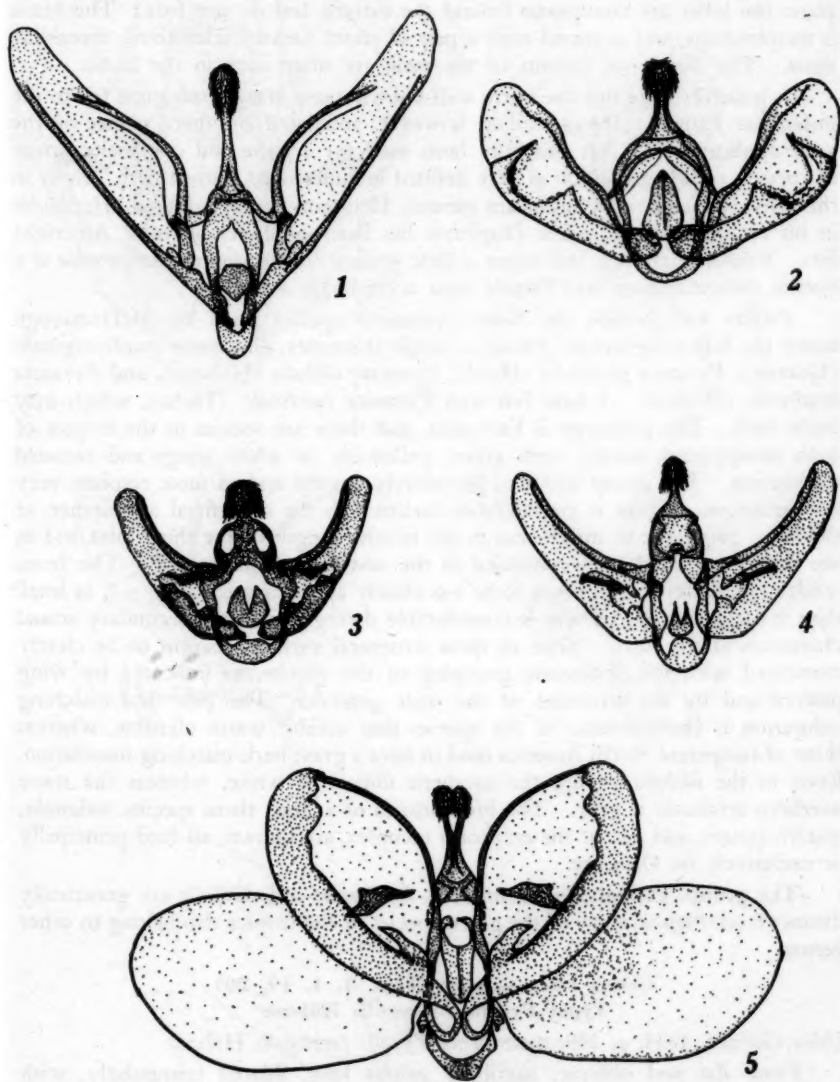
Margaronia Hübner [1824-25]; type: *Palpita unionalis* Hübner, designated by Moore, 1886

Frons rounded or oblique, not prominent; maxillary palpus long, ending in a flat tuft of scales in the upper plane of the frons; labial palpus obliquely ascending, with the third joint porrect, of varying length, usually concealed in the long vestiture; antennae smooth, but frequently with special modifications in the male.

Wings more or less triangular, the apices varying from almost acute to rather broadly rounded; frenulum hook absent. Wing venation normal for the group; R_1 arising at or before the middle of the cell; the stalk of $R_3 + 4$ is longer than the free portions of those veins; R_5 is bent and approximated at the base to $R_3 + 4$, closely and for a considerable distance in the larger species, less obviously in the smaller ones; anal loop large; discocellulars moderately curved in both fore and hind wings.

Male genitalia: tegumen broad; uncus wide at the extreme base, abruptly narrowing to form a long, narrow rod, which is very slightly expanded and strongly spinulose at the tip; saccus narrow; valve broad and ovate, with costa narrowly and sacculus more broadly inflated; the sacculus commonly bearing a more or less complex armature of dorsally directed flanges or spines; juxta stout, heavily sclerotized, thorn-like or quadrate. Aedoeagus moderately stout, bearing a bundle of slender, barbed, deciduous cornuti, and often one or two stout, fixed ones. Behind the eighth abdominal segment, there is a pair of coremata with heavy scent-brushes; these are enormously developed in some of the species.

Female genitalia: these are extremely characteristic, and very uniform through-



FIGS. 1-5

1. *Blepharomastix pseudoranal* (McDunnough). Male genitalia, ventral aspect; aedoeagus omitted. Tip of uncus hypothetical, based on *B. ranalis* (Guenée). 2. *Palpita illibalis* (Hübner). Male genitalia, ventral aspect; aedoeagus and subscaphium omitted. 3. *Udea torvalis* (Möschler). Male genitalia, ventral aspect; aedoeagus omitted. 4. *Udea galactalis* (Barnes and McDunnough). Male genitalia, ventral aspect; aedoeagus omitted. 5. *Mimophobetron liopasialis* (Dyar). Male genitalia, ventral aspect; aedoeagus omitted.

out the group. The ostium is surrounded by a strong, pilose, bilobed genital plate; the lobes are contiguous behind the ostium, but do not fuse. The bursa is membranous, and is armed with a pair of stout, heavily sclerotized, thorn-like signa. The deciduous cornuti of the male are often seen in the bursa.

It is unfortunate that the fairly well known name *Margaronia* must fall to the unfamiliar *Palpita*. *Margaronia* is, however, antedated by three names of the same application. It has generally been used for a large and composite group of species, of which *Palpita* as here defined includes only a small part. Even in this sense the usage is by no means general, Hampson having adopted *Glyphodes* in his revisional work, while *Diaphania* has been employed in most American lists. I think, therefore, that there is little ground for proposing *Margaronia* as a *nomen conservandum*, and *Palpita* must accordingly stand.

Palpita will include the North American species listed by McDunnough under the following names: *Paradosis flegia* (Cramer), *Diaphania quadristigmalis* (Guenée), *Pyrausta gracialis* (Hulst), *Pyrausta illibalis* (Hübner), and *Pyrausta arsaltealis* (Walker). I have not seen *Pyrausta haedulalis* (Hulst), which may come here. The genotype is European, and there are species in the tropics of both hemispheres, mostly with green, yellowish, or white wings and reduced maculation. The group seems to be entirely natural and in most respects very homogeneous. There is considerable variation in the superficial appearance of the labial palpi, due to differences in the relative length of the third joint and in the degree to which it is concealed in the vestiture of the second. The frons tends to be flatter and R_s tends to be less closely approximated to $R_s + 4$ in small than in large species. There is considerable divergence in the secondary sexual characters of the male. None of these structural variations seems to be clearly correlated with the taxonomic grouping of the species, as indicated by wing pattern and by the structure of the male genitalia. The pale, leaf-matching coloration is characteristic of the species that inhabit warm climates, whereas those of temperate North America tend to have a gray, bark-matching maculation. Even in the *illibalis* group, the southern *illibalis* is white, whereas the more northern *arsaltealis* is gray. The life-histories of at least three species, *unionalis*, *quadristigmalis*, and one of the *arsaltealis* complex, are known; all feed principally or exclusively on Oleaceae.

The groups exemplified by *nitidalis*, *hyalinata*, and *sibillalis* are generically distinct from *Palpita*; some of the green species of the tropics also belong to other genera.

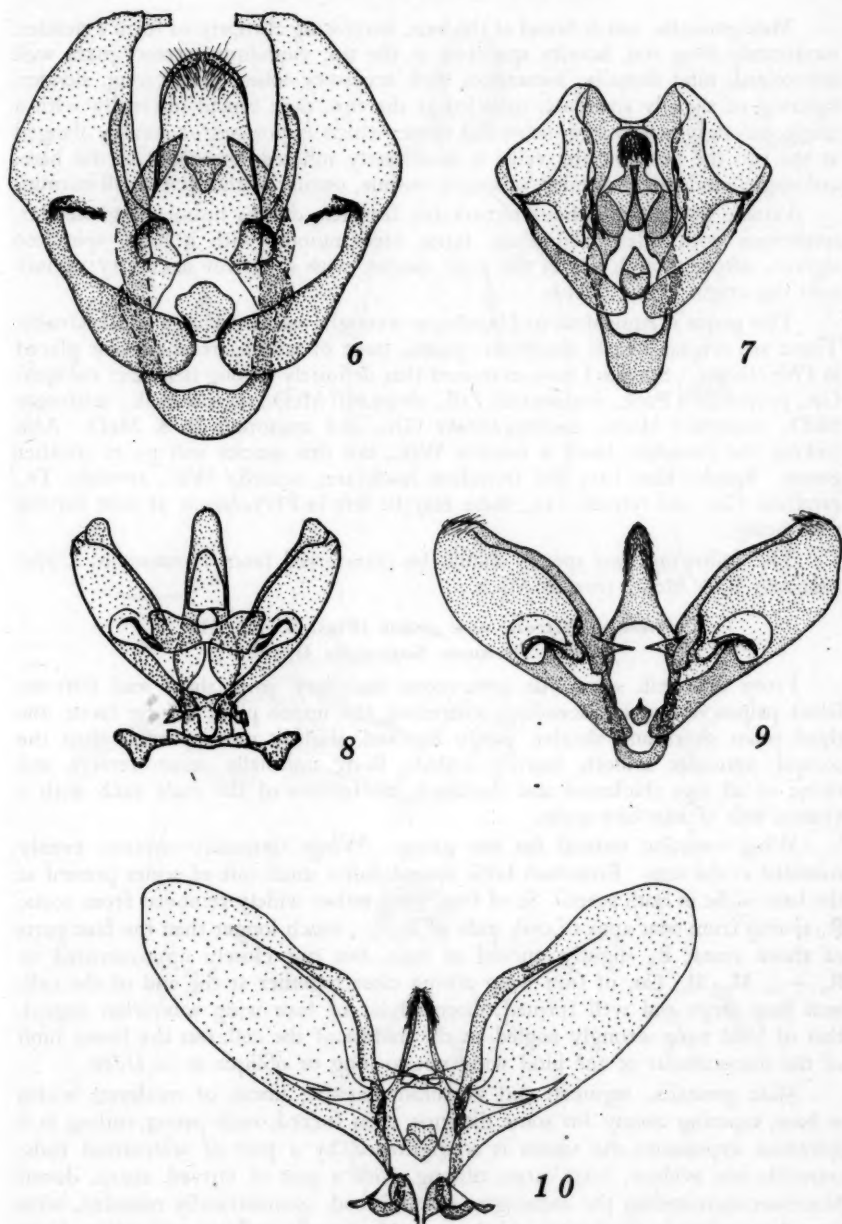
Genus *Udea* Guenée (Figs. 3, 4, 19, 20)

Type: *Pyralis ferrugalis* Hübner

Udea Guenée, 1844, p. 209; monotype: *Pyralis ferrugalis* Hübner

Frons flat and oblique; maxillary palpus long, dilated triangularly, with scales at the apex; labial palpus porrect, exceeding the head by more than its length, third joint usually concealed in the vestiture of the second; antennae smooth and ciliated.

Wings variable in shape; frenulum hook absent, but a fan-shaped tuft of scales at the base of the male fore wing below. Venation normal for the group: R_1 arising from the distal fourth of the cell; R_s straight and not approximated to $R_s + 4$; M_2 and M_3 of fore wing arising close together, Cu_1 somewhat removed; discocellular of fore wing somewhat angulate, that of the hind wing strongly bent, with the lower part very oblique. Anal loop large and complete.



FIGS. 6-10

6. *Polygrammodes runcialis* Guenée. Male genitalia, ventral aspect; aedoeagus omitted.
7. *Polygrammodes langdonalis* (Grote). Male genitalia, ventral aspect; aedoeagus omitted.
8. *Sameodes cancellalis* (Zeller). Male genitalia, ventral aspect; aedoeagus omitted. 9. *Mecyna submedialis* (Grote). Male genitalia, ventral aspect; aedoeagus omitted. 10. *Macrobotys aeglealis* (Walker). Male genitalia, ventral aspect; aedoeagus omitted.

Male genitalia: uncus broad at the base, narrowing abruptly to form a slender, moderately long rod, heavily spinulose at the tip; vinculum narrow; juxta well sclerotized, bifid dorsally, sometimes with accessory lobes; valves long, slender, tapering or slightly spatulate, rounded at the tips, each armed internally with a single, strongly sclerotized, sub-basal spine, which is pointed or weakly flanged at the tip; the costa of the valve is moderately inflated, especially at the base; aedoeagus moderately slender, of simple outline, usually with a few small cornuti.

Female genitalia: without remarkable features; ductus bursae long, slender, sometimes with sclerotized areas; bursa membranous, with a long, spinulose signum; often, though not in the type species, with a narrow accessory signum near the origin of the ductus.

This genus is equivalent to *Hapalia*, as wrongly used by Pierce and Metcalfe. There are several North American species, most of which are at present placed in *Phlyctaenia*. Species I have examined that definitely belong here are: *rubigalis* Gn., *profundalis* Pack., *inquinatalis* Zell., *sheppardi* McD., *itysalis* Wlk., *saxifragae* McD., *radiosalis* Msch., *washingtonalis* Grt., and *angustalis* B. & McD. Also lacking the frenulum hook is *helvalis* Wlk., but this species will go to another genus. Species that have the frenulum hook are: *acutella* Wlk., *terrealis* Tr., *extricalis* Gn., and *tertialis* Gn.; these may be left in *Phlyctaenia*, at least for the time being.

The following two species should be transferred from *Pyrausta* to *Udea*: *galactalis* B. & McD., *torvalis* Msch.

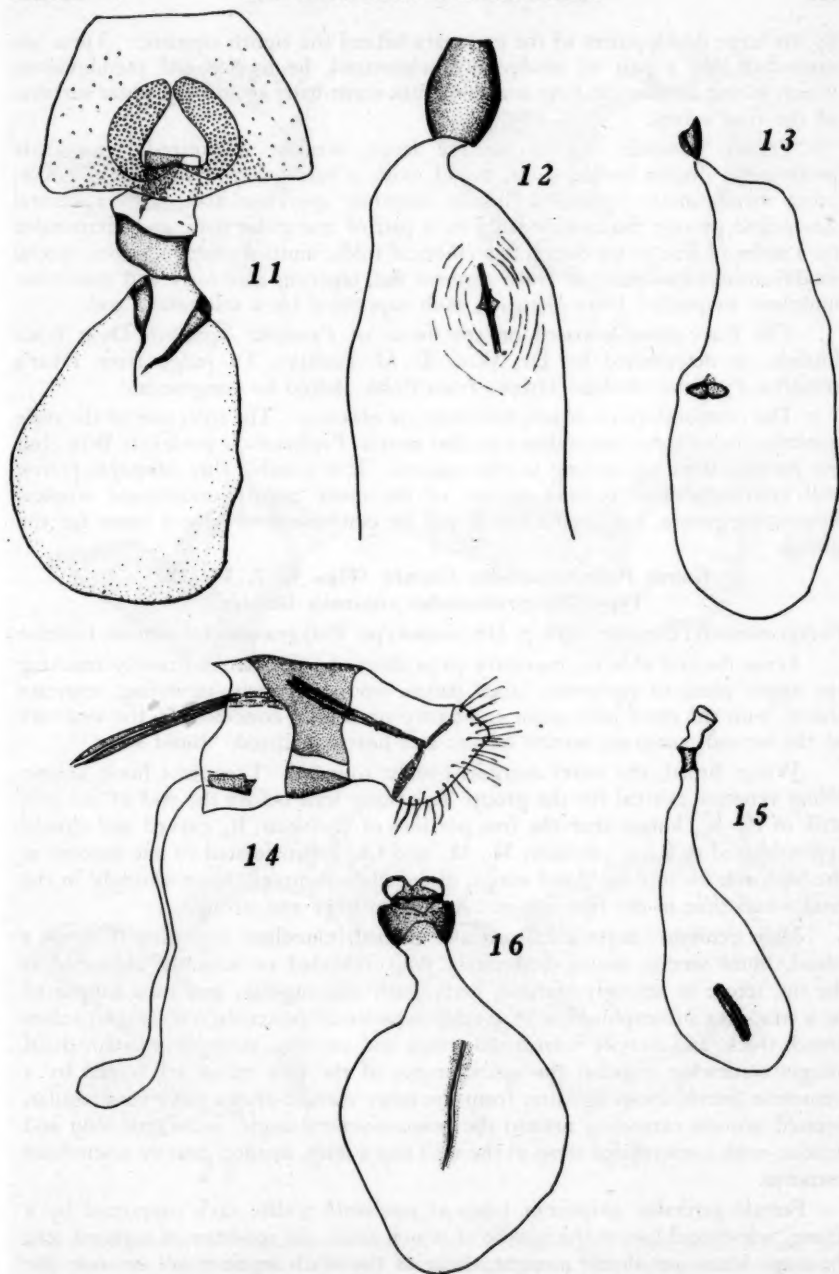
***Mimophobetron*, new genus (Figs. 5, 12, 21)**

Type: *Pyrausta liopasialis* Dyar

Frons rounded, somewhat prominent; maxillary palpi short and filiform; labial palpus obliquely ascending, exceeding the upper plane of the front, the third point short and slender, partly exposed, slightly more porrect than the second; antennae smooth, heavily scaled. Body unusually stout; femora and tibiae of all legs thickened and flattened; midfemora of the male each with a ventral tuft of hair-like scales.

Wing venation normal for the group. Wings unusually narrow, evenly rounded at the tips. Frenulum hook absent, but a small tuft of scales present at the base of Sc in both sexes. Sc of fore wing rather widely removed from costa; R_1 arising from near apex of cell; stalk of $R_3 + 4$ much longer than the free parts of those veins; R_5 slightly curved at base, but not closely approximated to $R_3 + 4$; M_2 , M_3 , Cu_1 of fore wing arising close together at the end of the cell; anal loop large and well formed; discocellular of fore wing somewhat angled, that of hind wing strongly angled, at the middle of the cell, but the lower limb of the discocellular of the hind wing not so long or oblique as in *Udea*.

Male genitalia: tegumen and vinculum narrow; uncus of moderate width at base, tapering evenly for some distance, then forked, each prong ending in a spinulose expansion; the uncus is strengthened by a pair of sclerotized rods; transtilla not evident; juxta large, oblong, with a pair of curved, sharp, dorsal processes surrounding the aedoeagus; valves broad, symmetrically rounded, with the costa narrowly thickened and the sacculus broadly inflated and setose; from the base of the sacculus a small, dorsal, finger-like projection extends obliquely distad; there is also a somewhat larger, hook-like process which extends ventrad from about the middle of the inner surface of the valve; aedoeagus a moderately stout tube, somewhat narrowed at the middle, with a sclerotized strap in the wall and two spinose patches internally. The genitalia are given a remarkable aspect



FIGS. 11-16

11. *Palpita illibalis* (Hübner). Bursa and structures surrounding ostium, ventral aspect. 12. *Mimophobetron liopasialis* (Dyar). Anterior portion of bursa, ventral aspect. 13. *Macrobortys aeglealis* (Walker). Bursa, ventrolateral aspect. 14. *Polygrammodes flavidalis* (Guenée). Female genitalia, lateral aspect. 15. *Sameodes elealis* (Walker). Bursa, ventral aspect. 16. *Mecyna luscitialis* (Barnes and McDunnough). Bursa, ventral aspect.

by the large development of the coremata behind the eighth segment. These are expanded into a pair of moderately sclerotized, hemispheroidal pseudovalves, which in rest confine the long and numerous scent-hairs against the outer surfaces of the true valves.

Female genitalia: eighth sternite large, weakly sclerotized, emarginate posteriorly; ductus bursae short, broad, with a barrel-shaped sclerotized collar; bursa membranous; signum a diffuse, minutely spinulose area, with a central sclerotized groove, flanked medially by a pair of triangular flaps, and surrounded by a series of five or six concentric elliptical folds; ninth segment without special modifications; apodemes of tenth segment flat, tapering anteriorly and somewhat undulate; ovipositor lobes elongate, each supported by a sclerotized rod.

The description is based on specimens of *Pyrausta liopasialis* Dyar from Florida, as determined by Dr. Wm. T. M. Forbes. To judge from Dyar's remarks, *Pyrausta rhodope* Hmps., from Cuba, should be congeneric.

The relationships of *Mimophobetron* are obscure. The structure of the male genitalia shows some resemblance to that seen in *Pachyzancla periusalis* Wlk., but the pseudovalves are lacking in that species. It is possible that *Mimophobetron* will eventually have to sink to one of the many poorly understood tropical Pyraustine genera, but meanwhile it will be convenient to have a name for the group.

Genus *Polygrammodes* Guenée (Figs. 6, 7, 14, 22)

Type: *Polygrammodes runicalis* Guenée

Polygrammodes Guenée, 1854, p. 318; monotype: *Polygrammodes runicalis* Guenée

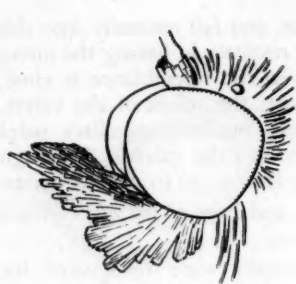
Frons flat and oblique; maxillary palpi short and filiform, not nearly reaching the upper plane of the frons; labial palpus stout, obliquely ascending, truncate above, with the third joint small and partly or wholly concealed in the vestiture of the second; antennae serrate below, and heavily ciliated. Build stout.

Wings broad, the outer margins evenly rounded. Frenulum hook absent. Wing venation normal for the group: R_1 arising well before the end of the cell; stalk of $R_3 + 4$ longer than the free portions of the veins; R_5 curved and closely approximated to $R_3 + 4$ at base; M_2 , M_3 , and Cu_1 approximated to one another at the base in both fore and hind wings; discocellulars curved, more strongly in the hind wings than in the fore wings. Anal loop large and strong.

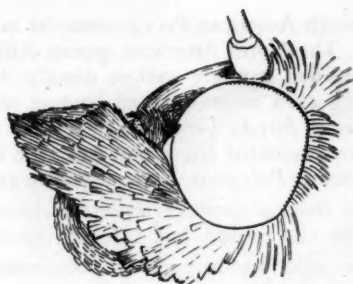
Male genitalia: tegumen broad and domed, vinculum expanded to form a broad, blunt saccus; uncus moderately long, rounded or strongly expanded at the tip, setose to strongly spinose; juxta small and angular; anal tube supported by a strap-like subscaphium, with weakly sclerotized posterolateral flanges; valves broad, thick, and heavily sclerotized; costa and sacculus strongly inflated, distal margin somewhat angular; the apical angles of the two valves are joined by a transverse membranous ligature; from the inner surface of the valve an irregular, pointed process extending toward the postero-ventral angle; aedoeagus long and slender, with a sclerotized strap in the wall and a long, slender, heavily sclerotized cornutus.

Female genitalia: ovipositor lobes of moderate width, each supported by a strong, sclerotized bar, at the middle of which arises the apodeme of segment ten; these apodemes are almost straight, those of the ninth segment are sinuous; the ductus bursae is very slender and has an incomplete, sclerotized collar near its aperture; the bursa is very small and unarmed.

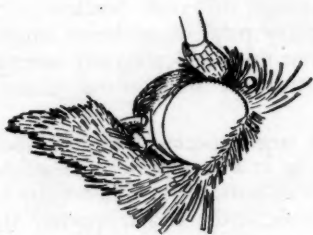
The three closely related forms *flavidalis* Gn., *oxydalis* Gn., and *langdonalis* Grt. closely resemble *Polygrammodes runicalis* Gn. in structure, and some of the



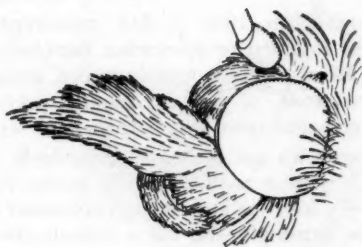
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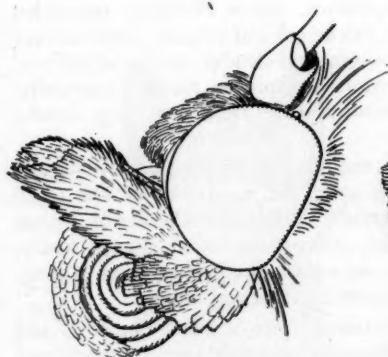
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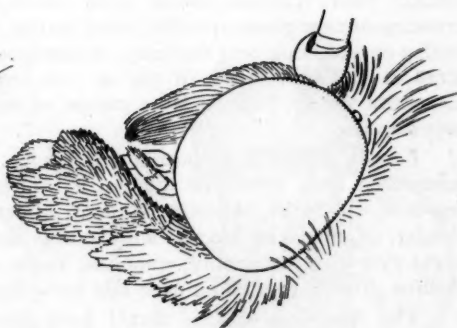
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FIGS. 17-22

17. *Blepharomastix pseudoranalalis* (Barnes and McDunnough). Head, lateral aspect; frons denuded. 18. *Palpita illibalis* (Hübner). Head, lateral aspect. 19. *Udea torvalis* (Möschler). Head, lateral aspect; maxillary palpus partly denuded. 20. *Udea galactalis* (Barnes and McDunnough). Head, lateral aspect. The fan-shaped terminal tuft of the maxillary palpus is dorsoventrally compressed, so that the palpus appears filiform when drawn from this aspect. 21. *Mimophobetron liopasialis* (Dyar). Head, lateral aspect. 22. *Polygrammodes flavidalis* (Guenée). Head, lateral aspect; labial palpus somewhat depressed, exposing the maxillary palpus.

other South American *Polygrammodes* in appearance, and fall naturally into this genus. The North American species differ from *P. runicalis* in having the uncus expanded and strongly spinose distally, but otherwise the resemblance is close, extending even to the unusual ligature which connects the apices of the valves. The species *hirtalis* Grt., usually placed in this genus, has long maxillary palpi and a low, rounded frons, and lacks the ligature between the valves. Although it is related to *Polygrammodes*, it will almost certainly have to go to another genus.

The tropical species *Omphisa anastomosalis* Gn. and *Prooedema nigrolinealis* Warr. are also related, but differ in external structure.

The true associations of *Polygrammodes flavidalis* were recognized by Druce (1895), who grouped it with several species of *Polygrammodes* under the name *Pachyinoa*.

Genus *Sameodes* Snellen (Figs. 8, 15, 23)

Type: (*Botys cancellalis* Zell. =)

***Sameodes trithyralis* Snellen**

Sameodes Snellen, 1880, p. 217; monotype: *Sameodes trithyralis* Snellen

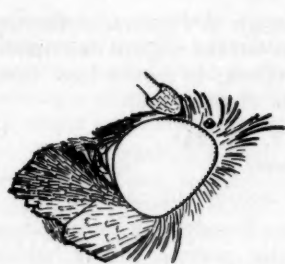
Frons rounded or somewhat flattened; maxillary palpi of moderate length, filiform; labial palpus smoothly scaled, second joint thick and obliquely ascending, third small, of varying length, porrect. Antennae smooth and ciliated. Body slight, abdomen longer than hind wings.

Wings with apices acute, particularly in the larger species; frenulum hook absent. Venation normal for the group; R_1 arising at a varying level from the cell; $R_3 + 4$ long-stalked; R_5 approximated basally to stalk of $R_3 + 4$, weakly in the smaller, strongly and for a considerable distance in the larger, species; M_2 , M_3 , and Cu_1 usually somewhat approximated to one another at their bases, in both fore and hind wings. Anal loop large. Discocellulars weakly curved.

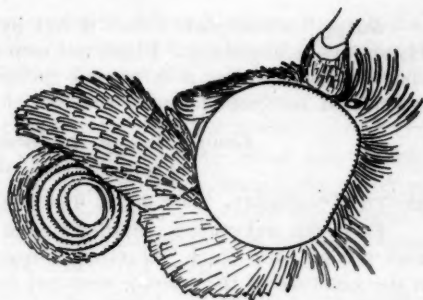
Male genitalia: tegumen weakly sclerotized; uncus semi-membranous, variable in shape, usually with a pair of spine patches at the tip, which is rounded or weakly bifid; transtilla broad; juxta inconspicuous; valves elongate, somewhat truncate or emarginate apically, costal margin thickened and tubular, inner surface with a curved hook near the base. Aedoeagus long and slender, with a sclerotized strap in the wall, and with one or two cornuti or spinose patches internally. Coremata strong, bearing large masses of woolly scales, and also long, slender hair-pencils.

Female genitalia: ovipositor lobes long and narrow, supported by slender sclerotized rods, from the middle of which arise the apodemes of the tenth segment; apodemes of ninth segment moderately long, curved; ductus bursae slender, of moderate length, with a ring-like, sclerotized collar; ductus finely, bursa almost imperceptibly, spinulose; bursa somewhat elongate; signum a long, shallow groove, flanked on each side by a dentate, sclerotized strap.

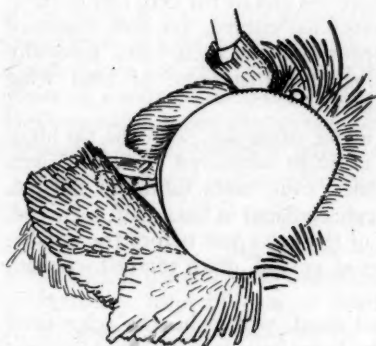
The American species that I have examined form a very compact and homogeneous group, characterized by the external appearance and structure, and also by the nearly identical male genitalia, with distally emarginate valves, each bearing a fusiform spine at the tip. This group differs from the genotype, the Old World *S. cancellalis*, in minor characters of wing venation and genitalic structure. I do not think that these differences are fundamental: the closely similar palpi, the resemblance in general facies, and particularly the similar development of specialized hair-pencils in the coremata suggest to me a direct relationship, and accordingly I shall not for the present split the genus. *Stenophyes burronalis* Gn. is also closely related. I have not seen the type species of *Epipagis* Hübner, which is given by Shibuya (1928) as a prior name for *Sameodes*.



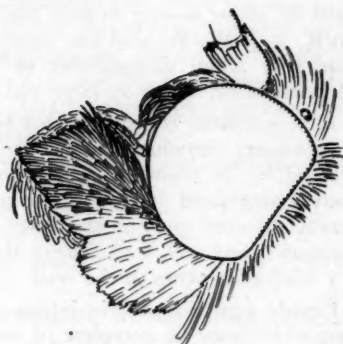
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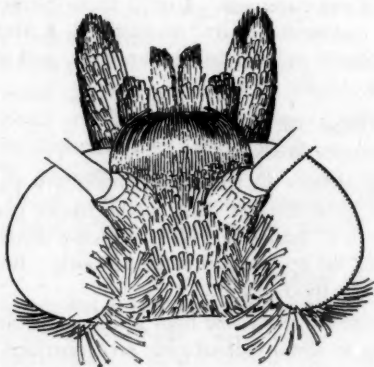
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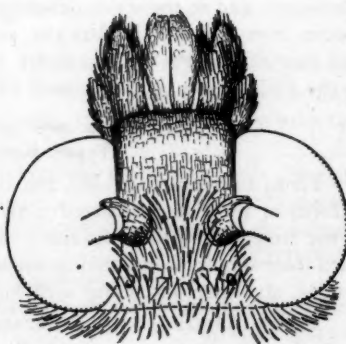
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FIGS. 23-28

23. *Sameodes adipaloides* (Grote and Robinson). Head, lateral aspect. 24. *Mecyna submedialis* (Grote). Head, lateral aspect. 25. *Macrobotys thesesalis* (Walker). Head, lateral aspect. 26. *Macrobotys aeglealis* (Walker). Head, lateral aspect. 27. *Macrobotys thesesalis* (Walker). Head, dorsal aspect. 28. *Macrobotys aeglealis* (Walker). Head, dorsal aspect.

Botys fuscimaculalis Grote is left by McDunnough in *Pyrausta*, following Hampson's arrangement. I have not seen this species, but the original description clearly indicates that it is related to *trimaculalis* Grote; it should have been transferred to *Sameodes* with the rest of the species of this group.

Genus *Mecyna* Doubleday (Figs. 9, 16, 24)

Type: *Pyralis asinalis* Hübner

Mecyna Doubleday, 1850, p. 14; monotype: *Pyralis asinalis* Hübner

Frons flat and oblique; maxillary palpi filiform, moderately long; labial palpus with second joint thick, ascending, third joint slender, porrect, largely hidden in the vestiture of the second; antennae heavily ciliated. Body moderately long and slender.

Wings subtriangular, outer margins rounded; frenulum hook absent. Venation normal for the group; R_1 arising well before the end of the cell; free parts of R_3 and R_4 about as long as their stalk; R_5 somewhat curved, but well separated from $R_3 + 4$; M_2 , M_3 , and Cu_1 somewhat approximated at their bases, especially in the fore wing; discocellular of fore wing almost straight, of hind wing moderately bent; anal loop large and complete.

Male genitalia: tegumen rather narrow; uncus triangular, with the tip blunt and spinulose; vinculum moderately wide; transtilla narrowed medially; juxta small and bi- or tri-lobed; valves large, slender, oval; costa tubularly inflated, slightly emarginated just before the apex; sacculus inflated in basal half; a curved, ventrally directed spine on the inner surface of the valve just before the middle; aedeagus cylindrical, with two or three pairs of curved, often toothed, cornuti, and a sclerotized strap in the wall.

Female genitalia: ductus bursae wide and short, with a heavily sclerotized collar, which may be complete or incomplete; bursa minutely spinulose, especially in the region of the signum, which is a long, narrow, longitudinally grooved, sclerotized strap.

This genus is closely related to *Sameodes*, but differs in minor external characters, and in the weak development of the coremata. I refer three Nearctic species from *Pyrausta* to *Mecyna*, namely, *submedialis* Grt., *luscitialis* B. & McD., and *mustelinalis* Pack. These are very closely related to one another, and also to the Old World species *asinalis* Hb. and *flavalis* D. & S.

***Macrobotys*, new genus (Figs. 10, 13, 25, 28)**

Type: *Botys aeglealis* Walker

Frons normally rounded, but flat and oblique in *theseusalis*; maxillary palpi filiform or moderately dilated with scales, extending at least to the upper plane of the frons; labial palpi obliquely upturned, of uniform width, truncate distally, third joint wholly concealed in the scales of the second; antennae smooth. Body slender, abdomen extending well beyond the hind wings.

Wings of normal form, outer margin faintly angled or bent at Cu_1 ; frenulum hook absent. Venation normal: R_1 arising in distal half of cell; free portions of R_3 and R_4 shorter than their stalk; R_5 curved at base and approximated to $R_3 + 4$; M_2 , M_3 , and Cu_1 moderately approximated at bases in fore wing, M_2 and M_3 strongly approximated at bases in hind legs; discocellular of fore wing gently curved, that of the hind wing moderately angled; anal loop large and complete.

Male genitalia: tegumen and vinculum very narrow; transtilla narrowed medially; uncus fairly long and rather slender, tapering almost to a point, the

extreme apex narrowly rounded; juxta very small, bilobed; valves large, ovate; costa rather sharply bent near its mid-point, narrowly inflated basally, the inflation becoming broader and shallower, and fading out near the apex; valves unarmed; aedoeagus cylindrical, lightly sclerotized, with a small spinulose patch internally. Coremata large, bearing a tuft of long, fine, straight, hair-like scales.

Female genitalia: ninth and tenth abdominal segments short and weakly sclerotized; bursa voluminous, densely but minutely spinulose on the posterior two-thirds, spinules arranged in longitudinal rows on the posterior third; signum somewhat quadrate, with a transverse hollow constricted in the middle; ductus bursae short, narrow, with an incomplete sclerotized collar.

This genus comprises the difficult *pertextalis* group. Since the exact identity of *pertextalis* is doubtful, I have chosen *aeglealis* as type. The general relationships are undoubtedly to the preceding two genera and to *Sylepta*; the structure of the palpi, as well as the simple uncus and unarmed valve, will distinguish this group from *Sylepta*, although some species of that genus (e.g., *ruralis* Scop. and *silicalis* Gn.) are very close in superficial appearance. So far as I know, the genus is confined to North America. It will include the forms listed by McDunnough under the names *pertextalis* Led., *fissalis* Grt., *aeglealis* Wlk., *thestealis* Wlk., *abdominalis* Zell., and *theseusalis* Wlk.

The taxonomy and nomenclature of the species are poorly understood.

Keys to the Genera Discussed

A.—Based on external characters

1. Maxillary palpi dilated triangularly with scales 2
Maxillary palpi filiform or nearly so 3
2. R_5 approximated basally to $R_3 + 4$; discocellular of hind wing moderately curved *Palpita*
 R_5 not approximated to $R_3 + 4$; discocellular of hind wing strongly bent, lower limb long and very oblique *Udea*
3. Maxillary palpi short, not nearly reaching the upper plane of the frons 4
Maxillary palpi long, reaching or exceeding the upper plane of the frons 6
4. Frons rounded 5
Frons strongly flat and oblique*; size large; build stout *Polygrammodes*
5. Build slight, apex acute *Blepharomastix*
Build stout, apex and tornus broadly rounded *Mimophobetron*
6. R_5 approximated basally to $R_3 + 4$ 7
 R_5 not approximated to $R_3 + 4$, though somewhat curved at base *Mecyna*
7. Third joint of labial palpus exposed, porrect *Sameodes*
Third joint of labial palpus wholly concealed in the vestiture of the second *Macrobotys*

B.—Based on male genitalia

1. Coremata developed into a large pair of pseudovalves, which fit over the valves and scent-tufts *Mimophobetron*
Coremata not so developed 2
2. Coremata bearing differentiated hair-pencils in addition to the scent-tufts *Sameodes*
Coremata bearing only undifferentiated scent-tufts 3
3. Uncus produced to form a slender rod, spinulose at tip 4
Uncus short and broad, triangular or spatulate 6

*Except in *P. birtalis* (and possibly also in *P. capitalis*), which does not really belong to this genus.

4. Valve armed internally with spines, rods, or flanges 5
Valve unarmed *Blepharomastix*
5. Valve long and narrow, with a single strong spine arising just below the base of the costa, and directed distad or ventrad *Udea*
Valve short and oval, with no spine arising below the base of the costa, but with a dorsally directed armature arising from the sacculus; this armature consisting of one or two low flanges, or may be large and complex *Palpita*
6. Valve without armature *Macrobotys*
Valve with a large spine or flange arising from the inner surface 7
7. Tegumen broad and domed, uncus heavy and spatulate; spine of valve broad and triangular *Polygrammodes*
Tegumen narrow, uncus weakly sclerotized, triangular, rounded at tip; spine of valve slender and decurved *Mecyna*

C.—Based on female genitalia

1. Bursa unarmed *Polygrammodes*
Bursa with a signum or other armature 2
2. Bursa with a symmetrical pair of internal, hollow, thorn-like spines *Palpita*
Bursa with one signum, or, if two signa are present, they are not symmetrical 3
3. Signum transversely elongated, with a conspicuous groove or depression along the transverse axis 4
Signum longitudinally elongated, usually with a narrow groove in the longitudinal axis 5
4. Ductus with a broad, complex sclerite just before the ostium, then long and narrow, leading to the very small bursa *Blepharomastix*
Ductus short and narrow, with a small, simple collar, leading directly to the very large bursa *Macrobotys*
5. Signum ovate, with a weak axial groove, or none; often with an accessory signum near the origin of the ductus *Udea*
Signum linear, with a well-marked axial groove 6
6. Collar of ductus heavily sclerotized, and of complex configuration *Mecyna*
Collar of ductus of simple configuration 7
7. Collar of ductus large and barrel-shaped *Mimophobetron*
Collar of ductus small and ring-like *Sameodes*

Acknowledgment,

I wish to thank Miss Margaret MacKay, of Forest Insect Investigations, Division of Entomology, who was kind enough to make the drawings on which Figs. 17 to 28 are based.

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Preparation of Slide Mounts of Lepidopterous Genitalia¹

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One of the most essential procedures in the identification of many Lepidoptera is an examination of the genitalia, and for a most critical examination of these organs slide mounts must be prepared. In many cases, the preparation of slides is one of the most neglected arts in lepidopterology. This is to be deplored, for a well-prepared slide is not only handsome but also much more valuable taxonomically than a messily prepared one. For large and medium-sized specimens, I have found the following technique very gratifying in producing slides of uniformly high quality. Certain phases of the technique are not particularly well adapted for working with smaller moths.

Labelling

The specimen whose genitalia are to be studied is first provided with a number by which cross-reference may be made between slide mount and specimen. Slide number labels are prepared in duplicate. One of these is affixed to the pin holding the specimen, and the other accompanies the genitalia through the various reagents. For the latter purpose the slide number should be written on white card with an HB pencil.

Corrosion

The abdomens of specimens to be studied are immersed in a ten per cent solution of potassium hydroxide overnight. A few hours more or less in the caustic does little to alter its action. Generally, the use of cold caustic over a more or less prolonged period gives much more uniform results than relatively short immersion in hot or boiling caustic.

Dissection and Dehydration

After removal from the caustic the abdomen is placed in a dissection dish containing 30 per cent alcohol, in which the genitalia are removed and prepared for subsequent treatment.

Male Genitalia.—To remove male genitalia from the abdomen, the closed ends of a pair of curved forceps are placed on the lateral surface of the abdomen at the anterior end. This forces the contents toward the rear. A second pair of forceps is then placed on the abdomen immediately posterior to the first pair. This process is continued backward along the length of the abdomen. The

¹Contribution No. 2724, Division of Entomology, Science Service, Department of Agriculture, Ottawa, Canada.

²Agricultural Research Officer.

pressure thus built up in the posterior part of the abdomen forces the genitalia out of the body cavity. They may then be easily severed from the abdomen by tearing the membrane that connects the two. The penis is then removed from between the valves by applying the ends of a pair of forceps to the antero-dorsal surface of the vinculum and valves in such a manner that the anterior portion of the penis projects between the two jaws of the forceps. Then by grasping the end of the penis with another pair of forceps and pulling gently, one may draw the penis free of its enclosing membrane.

For the next step, the inflation of the vesica, a small glass hypodermic syringe must be employed. For use with this a supply of gauge-27 and -30 needles should be procured, these being the sizes that will commonly be employed. The gauge-27 needle is used to inflate the vesica or bursa of moths the size of small phalaenids. It is impossible, with the equipment mentioned in this article, to inflate the membranous genitalic sacs of small moths.

Once the penis is free of the anellus, the anterior end of the aedoeagus should be slit with a dissecting needle or scalpel. Through this slit a fine dissecting needle is inserted and the vesica gently pushed to the posterior end. The hypodermic syringe is then partially filled with 95 per cent alcohol and the point of the hypodermic needle introduced into the interior of the aedoeagus. The aedoeagus is then held firmly over the tube of the needle with a pair of fine forceps. Pressure is then applied to the plunger of the syringe. The alcohol ejected forces the vesica from the aedoeagus and inflates it.

The end of the hypodermic needle with the penis still attached may then be removed from the dissecting solution to a reagent dish of 95 per cent alcohol. Here the pressure is resumed on the plunger of the syringe to a sufficient degree to keep the vesica fully inflated for a minute or so. The 95 per cent alcohol within and without the vesica will quickly harden it in its inflated form. If the alcohol in the syringe is expended before the vesica has hardened, the penis may be removed from the needle and the syringe refilled. The procedure is repeated until the desired results are obtained. At this point, if a great length of the ejaculatory duct and its enclosing membrane adheres to the base of the penis, this may be trimmed.

Next, the valves are spread open. Superfluous hair is removed from valves and peniculi by means of fine forceps, brush, or flat-headed dissecting needle. The claspers are then removed to the 95 per cent alcohol. To ensure their hardening in an outspread condition a chip of glass may be placed over them. When spreading the claspers by this means, however, one must take care that the genitalia are not flattened to such a degree that the peniculi and uncus are distorted or that various sclerotized portions of the genitalia are split or broken.

The abdomen is flattened laterally in the dissecting solution and the scale covering removed with brush or dissecting needle. The abdomen and the slide number label are also transferred to the dish of 95 per cent alcohol containing the genitalia. Twenty minutes is usually sufficiently long for dehydration. Even in lightly sclerotized structures, I have never noticed any sign of distortion from this rapid dehydration. Membrane does have a tendency to wrinkle, but if the vesica, which is the membranous structure principally intended for study, has been maintained in an inflated condition for a sufficiently long period, little distortion will occur in it either.

Female Genitalia.—The procedure for the preparation of female genitalia is essentially the same. It is usually better to sever the eighth segment from the rest of the abdomen and mount it with the genitalia. The membrane between the

seventh and eighth segments is easily severed with dissecting needles. Corroded tissue may then be removed from about the bursa copulatrix and from the cavity of the eighth segment with fine forceps and dissecting needle. Inflation of the bursa is accomplished in a manner similar to that used for the male vesica. The needle of the syringe is inserted through the ostium into the ductus bursae. The ductus is clasped about the needle and pressure is applied to the plunger. The female genitalia are then transferred to a dish of 95 per cent alcohol and pressure is resumed for a minute or two as for the male.

Clearing and Staining

After being in the 95 per cent alcohol for about 20 minutes, the genitalia are transferred to a dish of clove oil for clearing.

It is usually wise to stain membranous structures lightly, for otherwise they have a tendency to "disappear" after remaining in the mounting medium for a time. It must be remembered, however, that a heavily stained mount is an eyesore and is almost impossible to examine in fine detail.

By dissolving the stain in clove oil, one may easily obtain a light, even stain at the same time that the structures are being cleared. The type of stain used will vary with its availability and the preference of the worker. In the case of safranin, which gives very commendable results, a saturated solution may be prepared from the powdered stain and absolute alcohol. Two drops of this solution are then added to a 14-in. reagent dish almost filled with clove oil; this gives a mixture of approximately one part of saturated alcoholic safranin solution to 100 parts of clove oil. The organs to be stained are left in this medium for half an hour; a few minutes more or less has little effect on the intensity and no differentiation will be necessary. No time will be lost while the genitalia are in the various reagents if a sufficient supply of dishes is available; genitalia can then be subjected to the various processes in groups.

The safranin-clove oil staining solution intensifies rapidly and must be replaced every few days.

From the clove oil, the structures are removed to a dish of xylol, which serves to remove the clove oil-safranin solution. In this chemical they may remain until mounted.

In the case of female genitalia and lightly sclerotized male genitalia, it is desirable to subject the whole structure to the staining solution. Safranin has a greater affinity for membranous structures, and leaves the more heavily sclerotized portions practically unaltered.

Mounting and Drying

Canada balsam is one of the most widely used permanent mounting media, but because of its tendency to discolour badly with age I prefer to use one of the synthetic resinous mounting media that are now on the market. Although these will take on a slight yellowish tinge, they do not become dark brown like balsam.

To obtain uniformity of position of the mount upon the slide, a small guide may be constructed of two glass slides and a piece of heavy white cardboard three inches by four inches. One glass slide is glued across the top of the cardboard and another is glued at right angles to it along the side. These serve as side- and end-markers for the slides on which genitalia are to be mounted. On the cardboard immediately below the top piece of glass and to the side of the lateral piece, an outline of a slide is pencilled, showing the position on the slide of cover slip or slips. Thus when a clean slide is placed in position over

the pencilled outline, the location of the mount upon the slide is easily ascertained. The standardization of position of the mount on the slide is of great utility for comparing the genitalia of two insects, as one slide may easily be placed atop the other.

In mounting specimens on slides a thick resin should be employed because the shrinkage due to the evaporation of a thin resin will cause the cover slip to bear down upon the genitalia, causing breakage and distortion. A thick resin will eliminate this difficulty and will dry much more rapidly than a thin one. A thick resin has, however, the fault of being difficult to work with. When warmed, it is easily used, but because of its greater fluidity it is well to place supports under the cover slip to prevent collapse. It is unwise to use a cell for it does not permit the evaporation necessary for the hardening of the mounting medium.

Small chips of glass form excellent supports for cover slips and will give slide mounts of uniform thickness. Chips are easily obtained by wrapping a few glass slides in paper towelling and pounding them with a hammer. Chips of the desired size are then removed from the debris with the aid of a series of sieves.

The genitalia are mounted as follows. A clean slide is placed over the outline indicating the position to be taken by the cover slip. Three chips of glass are daubed on one side with the mounting medium and pressed against the slide toward the periphery of the area to be covered by the cover slip. A large drop of the mounting medium is placed on the slide in the centre of the chips. The genitalia are removed from the xylol and sunk in the mounting medium.

Both male and female genitalia are mounted with the ventral surface uppermost. Male genitalia are placed with the claspers spread and the vinculum pointing toward the bottom of the slide. The penis is mounted on its side to the right of the claspers with the vesica toward the top of the slide. The female genitalia are mounted with the valves of the ovipositor toward the top of the slide. The exoskeleton of the abdomen is mounted above or to the side of the genitalia. If abdomen and genitalia are large it may be found necessary to mount the abdomen under a separate cover slip next to the genitalia.

The cover slip is now applied. To avoid entrapping large bubbles under the cover slip, it is well to moisten one side with xylol before applying the slip to the slide. The pencilled label that has accompanied the genitalia through the various reagents is smeared with the mounting medium and applied to one end of the slide.

To hasten hardening of the mounting medium, the slide may be placed in a drying oven set at a temperatures of about 55°C. While the slides are drying in the oven, bubbles may form about the periphery of the cover slip a day or so after the slide has been made. This condition is easily remedied by filling the bubbles with xylol and returning the slide to the oven. Sufficient mounting medium will be drawn into the air spaces to fill them.

If a synthetic resin is used, the slides will harden almost completely by the end of three or four days. Superfluous resin and the numbered card are now scraped from the slide with a razor blade and the slide is cleaned with a rag moistened in xylol. The permanent label is now affixed to one end of the slide.

The preceding technique may be adapted in many ways to the preferences of the individual worker. The procedure is not flawless and difficulties may be encountered. The process of inflating the membranous sacs is not adapted to

working with small Lepidoptera. In some instances, even among larger Lepidoptera, it is impossible to secure satisfactory inflation of the membranous genital sacs. The armature of the vesica may be such that eversion is impossible. The vesica or bursa may be punctured during the process of dissection so that subsequent inflation is impossible. If the fundamental principles are employed, however, results will be found to be extremely gratifying.

It has been postulated by certain authorities that the shapes of membranous structures are too variable for use in systematic work. It is true that different degrees of inflation will produce differences in size of the sac and perhaps, in some cases, in proportion, but otherwise I have found no greater intra-specific variability in the shapes of membranous structures than in sclerotized ones.

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Minutes of the Seventy-seventh Annual Meeting, the Six Hundred and Twenty-seventh Regular Meeting of the Montreal Branch, Entomological Society of Ontario, Held in the Lyman Room of the Redpath Museum, McGill University, on the Twenty-sixth Day of May, 1950, at which were present:

Dr. and Mrs. G. H. Fisk, Miss B. Fortin, Messrs. J. H. Hall, J. E. King, J. Lafrance, H. A. U. Monro, George A. Moore, Moreley, J. P. Perron, A. C. Sheppard, Miss P. Waterston, and E. R. Bellemare.

President George A. Moore is in the chair.

- 1—THE MINUTES of the six hundred and twenty-sixth meeting are read by the Secretary and unanimously adopted.
- 2—APPLICANTS FOR MEMBERSHIP.—The following are nominated for membership by President George A. Moore: Miss Helen Martin, Mr. C. Hoare. These nominations to be considered at the next regular meeting.
- 3—THE MINUTES of the last annual meeting are unanimously adopted as read upon a motion by Mr. H. A. U. Monro, seconded by Dr. G. H. Fisk.
- 4—ANNUAL REPORT OF SECRETARY.—This report which is being made part of these minutes is adopted upon a motion by A. C. Sheppard.
MOTION by H. A. U. Monro, seconded by A. C. Sheppard and unanimously approved that the members wish to and do express their confidence for the continuance of activities such as have produced a worthy program during the year ending.
- 5—ANNUAL REPORT OF TREASURER.—This report as presented by Treasurer A. C. Sheppard is being made part of these minutes, after unanimous adoption as moved by Dr. G. H. Fisk.
- 6—PRESIDENT'S ANNUAL REPORT.—This report is being made part of these minutes.
- 7—ANNUAL ADDRESS OF PRESIDENT.—The President has chosen for his subject the "Insects, their Origin and Interrelationships". The speaker reviews the various theories related to the origins of insects, from the Protozoans down to the common Hexapoda of today. Several scientists find proof that the insects and their allies arose from a worm-like creature, probably a primitive Annelid or jointed worm. However such statements are based more or less on speculation since intermediary forms have not been found among the fossils, the earliest form discovered in the Carboniferous era being Cockroaches, Mayflies and Stoneflies which are very much like present day forms. The presence of wings in most insects, their absence in others, the conflicting theories of the origin of the wings are as many problems which are still lacking a satisfactory solution. However for the student of insects, wings and wing formations establish a link between the various groups and the theoretical parentage established between the various orders gives more life and interest to the study of this most important group of Arthropods.
- 8—NOMINATION COMMITTEE REPORT.—H. A. U. Monro, Chairman of the Committee presents the following slate of officers for the coming season 1950-51: President, Rev. O. Fournier; Vice-President, Mr. G. A. Moore; Secretary, Prof. E. R. Bellemare; Treasurer, Mr. A. C. Sheppard; Council, Dr. G. H. Fisk, Dr. A. A. Beaulieu, Mr. H. V. Green, Dr. F. O. Morrison.
H. A. U. Monro moves and A. C. Sheppard seconds the motion that the above

slate of officers be adopted. Unanimously agreed. The above officers are declared elected for the following term. Mr. H. A. U. Monro explains that President George A. Moore has again this year asked to leave the chair to another member who will have an opportunity of getting acquainted with the spirit of the Society. It is only after Mr. Moore's repeated expression of this wish that the Nomination Committee has agreed to let Mr. Moore retire. Mr. Moore offers his assistance to the new President. In answer to the expression of gratitude from the members Mr. Moore states that whatever he has done for the Society he did because he enjoyed doing it.

- 9—ENTOMOLOGICAL SOCIETY OF CANADA.—The President, Mr. Moore, reads a letter addressed to the Montreal Branch by W. N. Keenan, President of the Parent Society. Mr. Keenan is feeling the opinion of the various entomological groups on the long pending subject of reorganising the Entomological Society of Ontario under a new name. The President will write Mr. Keenan and express our approval of the project.

The meeting then adjourns.

(Signed) Ovila Fournier.

George A. Moore, *President*.

E. R. Bellemare, *Secretary*.

Report of Activities of The Montreal Branch, Entomological Society of Ontario, Year 1949-1950

- 1—MEETINGS.—Following the Annual Meeting, held on October 21st, there were held five (six with the Annual Meeting of today) regular meetings by the Society, instead of the usual monthly gatherings, in accordance with the new policy of having fewer but better attended meetings.
- 2—ATTENDANCE.—The new policy proved successful in that the average attendance at each meeting (including guests) has been 25.5, with a minimum of 15 and a maximum of 41, which, it is believed, shows an appreciable gain over past years.
- 3—PAPERS AND NOTES.—At each meeting we endeavoured to present a program which could interest everyone. The following papers and notes were given: December 3, 1949—"An Entomologist in California", H. A. U. Monro. Remarks on the Annual Meeting of the Parent Society in Winnipeg, Eugene Munroe. January 20, 1950—"Influence of Periodical Exposures to Various Temperatures on the Development of the Native Elm Bark Beetle", A. Robert, c.s.v. Short remarks on the Tampa, Florida, meeting of the American Association of Economic Entomologists, E. R. Bellemare. "Insects" general considerations on their numbers, George A. Moore. March 4, 1950—"The Scientific Approach to a Problem in Entomology", J. B. Maltais. Book review: *Physiologie de l'Insecte*, by Rémy Chauvin, Father O. Fournier. April 15, 1950—"Entomological Progress and Trends through Students' Eyes". A Symposium of brief reports by some twelve students from laboratories scattered from British Columbia to Newfoundland.
- 4—MEMBERSHIP.—The Montreal Branch, in the course of the expiring year of operations, has been enriched by ten new members, nine of which had never belonged to the Entomological Society before, the other one being a member transferred from the Parent Society to the Branch. The members of old

standing responsible for recruiting the newcomers are to be congratulated for their activity in this field.

Respectfully submitted,

May 26, 1950.

E. R. Bellemare, *Secretary*.

**Statement of Revenue and Expenditure, Montreal Branch,
Entomological Society of Ontario, Year Ended May 16, 1950**

INCOME

Bank balance brought forward.....		\$152.33
Dues collected:		
Arrears	26.00	
For year 1950.....	62.00	
	88.00	
Bank interest	2.30	90.30
		\$242.63

EXPENSES

Lyman Room for the October, December, March and May meetings.....	\$ 8.00
Minute Book	9.98
Envelopes, postage and excise stamps.....	2.65
Dues remitted to Parent Society for 1950, 15 members at \$3.00.....	45.00
	65.63
Bank balance carried forward.....	177.00
	\$242.63

May 16th, 1950.

A. C. Sheppard, *Treasurer*.

Montreal Branch Annual Meeting, May 26, 1950

Another year of our Branch's existence has come and gone. You will hear from the Report prepared by the Secretary for the Council, that it has been very successful in numbers attending and programs presented.

We held six meetings this year instead of the former number of eight. This was decided by the members as it had been found that eight meetings put a strain upon the securing of papers and also the inclemency of our winter had an unfavorable result on our attendance. The new venture seems to have worked satisfactorily.

Also the alternating of meetings on Friday and Saturday night appears to have been a good move.

The summer season is on now, and I trust our members will make full use of it, and get in as much field work as possible.

I would recommend that our members bring specimens of their particular order, to each meeting, for the benefit of the other members, and for discussion. On reading the proceedings of other Societies, particularly those in Great Britain, this is the usual program for meetings. Each member deals with different species and there is usually some new feature which could be exhibited for the benefit of others.

There is one thing that bothers me, and that is the little entomological work that is being done by our members, especially those who are professional

entomologists, that is outside their daily work. I would like to see a lot of research work being done for the love of it, for the burning desire to search out every species, to know its life history and to engage in the many problems still unsolved.

This meeting completes my 26th year as President and as I have indicated for several years I am asking to be relieved and a new President elected. I understand the Nomination Committee has tried to meet this wish and I hope someone else will be chosen. I believe the welfare of the Branch will be benefited by a change and that new ideas will result.

It is necessary that others become familiar with our traditions and carry them on. The younger members should take an interest in our past and have plans for the future.

George A. Moore, *President*.

**Entomological Society of Ontario, Montreal Branch,
Report of the Nomination Committee**

The Nomination Committee, consisting of Mr. A. C. Sheppard and myself, has had a meeting and discussions with prospective officers, and we now have pleasure in proposing the following slate of officers for the coming season 1950-51—President, Rev. O. Fournier; Vice-President, Mr. G. A. Moore; Secretary, Prof. E. R. Bellemare; Treasurer, Mr. A. C. Sheppard; Council, Dr. G. H. Fisk, Mr. A. A. Beaulieu, Mr. H. V. Green, Dr. F. O. Morrison.

Respectfully submitted,

H. A. U. Monro, *Chairman*.

Important Events in 1951

The attention of members of the Entomological Society of Ontario is drawn to the following letter received from the Hon. Secretary of the Royal Entomological Society of London.

August, 1950.

Sir,

Council of this Society has asked me to invite your attention to two events of special interest due to occur in the summer of next year, namely the Festival of Britain and, in Amsterdam, the IXth International Congress of Entomology.

Council have under consideration the possibility of assisting entomologists from overseas who may be visiting England or Holland in connection with these two events, by extending hospitality to them, more particularly in respect of the period immediately preceding the Amsterdam Congress.

I should be very grateful to have your views upon this suggestion and in particular to know the extent to which it might be welcomed by intending visitors to this country so that, in the light of this information, Council can further consider the proposal.

The precise form of hospitality that could be offered would depend very much upon the advice Council may receive from you; but I might add that in addition to some form of special meeting in the Society's rooms, personal hospitality may perhaps be available from individual Fellows of the Society to a limited extent. Even at this early stage, the names of any entomologists known to you who would be interested in these proposals would be welcomed.

I am, Sir,

Yours faithfully,

N. D. RILEY,

Hon. Secretary.

Any members interested in this invitation are asked to communicate directly with the Secretary of the Entomological Society of London.

THE EDITOR.

